FINAL

Office of River Protection
Consent Decree 08-5085-FVS

Monthly Summary Report

January 2016

Office of River Protection

Consent Decree 08-5085-FVS
Monthly Summary Report

January 2016 (Monthly Summary Report/Project Earned Value Management System reflects November 2015 information)

CD Milestone Statistics/Status

Milestone	Title	Due Date	Completion Date	Status
Fiscal Year 2014				
D-00B-01	Complete Retrieval of Tank Waste from 10 SSTs in WMA-C	09/30/2014		Past Due
D-00B-02	Advise Ecology of the Nine SSTs Waste will be Retrieved by 2022	09/30/2014	08/24/2011	Completed
Fiscal Year 2015				
D-00A-07	LAW Facility Construction Substantially Complete	12/31/2014		Past Due
D-00A-19	Complete elevation 98 feet Concrete Floor Slab Placements in PT Facility	12/31/2014		Past Due
Fiscal Year 2016				
D-00A-13	Complete Installation of Pretreatment Feed Separation Vessels	12/31/2015		Ongoing
Fiscal Year 2017				
D-00A-02	HLW Facility Construction Substantially Complete	12/31/2016		Ongoing

CD = Consent Decree.
Ecology = Washington State Department of Ecology.
HLW = high-level waste.
LAW = low-activity waste.
PT = pretreatment.
SST = single-shell tank.
WMA-C = C Farm waste management area.

Consent Decree Reports/Reviews

D-00C-01 series, Submit to State of Washington and State of Oregon Semi-Annual Report, Due: Semiannually – January 31 and July 31 of each year, Status: Ongoing. The July 2015 Semiannual Report was issued on July 31, 2015, via U.S. Department of Energy (DOE), Office of River Protection (ORP) letter 15-ECD-0037, "July 2015 Semi-Annual Report for State of Washington vs. U.S. Department of Energy, Case No. 08-5085-FVS, for Waste Treatment and Immobilization Plant Construction and Startup Activities and Tank Retrieval Activities – November 1, 2014, thorough April 30, 2015."

D-00C-02 series, Submit to State of Washington and State of Oregon Monthly Summary Reports, Due: End of each month, Status: Ongoing.

D-006-00-B1, Provide State of Oregon notice of meetings in D-006-00-B, etc. no less than 30 days before they are scheduled, Due: September 25, 2016, Status: On Schedule.

D-006-00-B, Meet Approximately Every Three Years after Entry of Decree to review requirements of the Consent Decree, Due: October 25, 2016, Status: On Schedule.

Single-Shell Tank Retrieval Program

Milestone	Title	Due Date	Status
D-00B-01	Complete Retrieval of Tank Wastes from 10 Remaining SSTs in WMA-C	September 30, 2014	Past Due
D-00B-01A through D-00B-01J	Submit Tank Retrieval Complete Certification	One year following each retrieved tank retrieval completion report[a]	Ongoing
D-00B-02	Advise Ecology of the Nine SSTs from which Waste Will Be Retrieved by 2022	September 30, 2014	Completed
D-00B-03	Initiate Startup of Retrieval in At Least 5 of 9 SSTs in D-00B-02	December 31, 2017	Ongoing*
D-00B-04	Complete Retrieval of Tank Wastes from the nine SSTs in D-00B-02	September 30, 2022	Ongoing*
D-00B-04A through D-00B-04I	Submit Tank Retrieval Complete Certification	TBD	TBD

a. Pursuant to Section IV-B-5 of the Consent Decree, the U.S. Department of Energy (DOE) must submit to the Washington State Department of Ecology (Ecology) a written certification that DOE has completed retrieval of a tank in accordance with the requirements of Appendix C, Part 1, of the Consent Decree.
Completed for Single-Shell Tank (SST) C-104 on March 21, 2013, via DOE Office of River Protection (ORP) letter 13-TF-0018. Completed for SST C-108 on May 1, 2013, via ORP letter 13-TF-0025. Completed for SST C-109 on June 4, 2013, via ORP letter 13-TF-0037. Completed for SST C-110 on January 29, 2014, via ORP letter 14-TF-0007. Completed for SST C-107 on September 30, 2014, via ORP letter 14-TF-0114. Completed for SST C-112 on September 30, 2014, via ORP letter 14-TF-0115.

TBD = to be determined.
WMA-C = C Farm waste management area.

Significant Past Accomplishments:

- Washington State Department of Ecology (Ecology) approved practicability evaluation request to forego a third retrieval technology in Tank 241-C-102.
- Completed Tank 241-C-102 Retrieval Completion Certification.
- Retrieved approximately 45 percent of waste from Tank 241-C-105 utilizing the Mobile Arm Retrieval System – Vacuum (MARS-V) and high-pressure water.
- Completed/Obtained Tank 241-C-105 in-process sample.

- Completed extended reach sluicing system (ERSS) installation and operational testing for Tank 241-C-111.
- Added 15,000 gallons of caustic (third technology) to Tank 241-C-111 in preparation of resuming retrieval operations in December, an estimated 33,000 gallons of waste remain in the tank.
- Completed C-101, C-107, and C-112 retrieval data reports (RDR).
- Completed isolation of legacy duct ventilation lines at Tank 241-AX-103 and Tank 241-AX-104.

Significant Planned Activities in the Next Six Months:

- Complete Tank 241-C-102 Post Retrieval Sampling.
- Complete Tank 241-C-105 second and third retrieval technologies.
- Complete Tank 241-C-111 ERSS retrieval operations using high-pressure water, with caustic/water dissolution (second and third technologies).
- Complete A/AX infrastructure (water and utilities) design – fiscal year (FY) 2015 Phase 4A and Phase 5.
- Complete isolation of legacy duct ventilation lines at Tank 241-AX-101 and Tank 241-AX-102.
- Complete AX Farm field work for tower, stack extension, and platform installation.
- Complete equipment removal/disposal at AX-101 pit and riser.
- Complete AX-2707 fencing and gate upgrades

Issues:

*DOE has notified the State of Washington and State of Oregon that a serious risk has arisen that DOE may be unable to meet this Consent Decree milestone.

Tank Waste Retrieval Work Plan Status

Tank	TWRWP	Expected Revisions	First Retrieval Technology	Second Technology	Third Technology
C-101	RPP-22520, Rev. 8	Complete	Modified Sluicing with ERSS	High-Pressure Water deployed with the ERSS	-
C-102	RPP-22393, Rev. 7	Complete	Modified Sluicing with ERSS	High-Pressure Water deployed with the ERSS	-
C-104	RPP-22393, Rev. 7	Complete	Modified Sluicing	Chemical Retrieval Process complete per 13-TF-0018	-

Tank	TWRWP	Expected Revisions	First Retrieval Technology	Second Technology	Third Technology
C-105	RPP-22520, Rev. 8	Third Technology	MARS-V	MARS-V-High Pressure Water Spray	TBD
C-107	RPP-22393, Rev. 7	Complete	MARS-S	MARS-S-High Pressure Water Spray	Water Dissolution
C-108	RPP-22393, Rev. 7	Complete	Modified Sluicing	Chemical Retrieval Process complete per 13-TF-0025	-
C-109	RPP-21895, Rev. 5	Complete	Modified Sluicing	Chemical Retrieval Process complete per 13-TF-0037	-
C-110	RPP-33116, Rev. 3	Complete	Modified Sluicing	Mechanical Waste Conditioning with an In-Tank Vehicle	High Pressure Water
C-111	RPP-37739, Rev. 2	Complete	Modified Sluicing	High pressure water using the ERSS	Chemical Dissolution Process with ERSS
C-112	RPP-22393, Rev. 7	Complete	Modified Sluicing	Chemical Retrieval Process	-

ERSS = extended reach sluicing system.
MARS = Mobile Arm Retrieval System.
S = sluicing.
TBD = to be determined.
TWRWP = Tank Waste Retrieval Work Plan.
V = vacuum.

Significant Accomplishments:

None.

Significant Planned Activities in the Next Six Months:

- Develop AX Farm tank waste retrieval work plans.
- Modify RPP-22520 (C-105 TWRWP) to include a third technology for C-105 retrieval

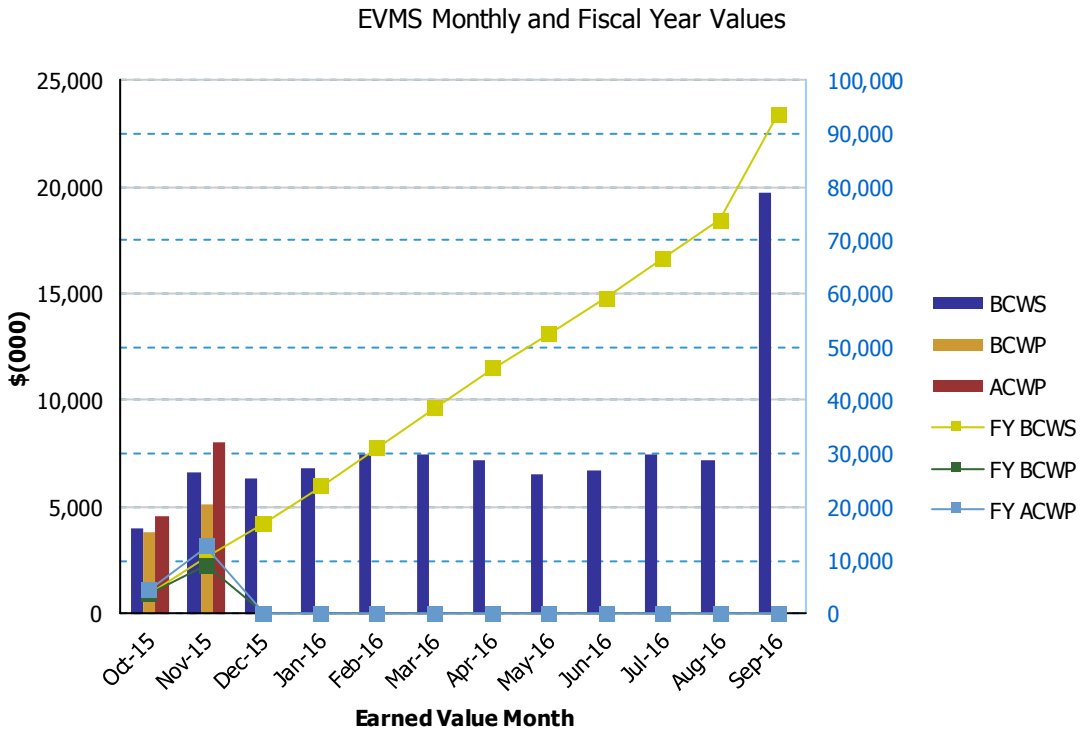
Issues:

None.

EXC-01a: Fiscal Year Cost and Schedule Report

Earned Value Data: Fiscal Year 2016 November-15

Tank Farms ORP-0014
Retrieve and Close SST's 5.02



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2015	$3,972	$3,814	$4,560	0.96	0.84	$3,972	$3,814	$4,560	0.96	0.84
Nov 2015	$6,619	$5,131	$8,006	0.78	0.64	$10,591	$8,946	$12,566	0.84	0.71
Dec 2015	$6,338	$0	$0	0.00	0.00	$16,929	$0	$0	0.00	0.00
Jan 2016	$6,764	$0	$0	0.00	0.00	$23,693	$0	$0	0.00	0.00
Feb 2016	$7,470	$0	$0	0.00	0.00	$31,163	$0	$0	0.00	0.00
Mar 2016	$7,418	$0	$0	0.00	0.00	$38,580	$0	$0	0.00	0.00
Apr 2016	$7,219	$0	$0	0.00	0.00	$45,800	$0	$0	0.00	0.00
May 2016	$6,564	$0	$0	0.00	0.00	$52,364	$0	$0	0.00	0.00
Jun 2016	$6,710	$0	$0	0.00	0.00	$59,073	$0	$0	0.00	0.00
Jul 2016	$7,500	$0	$0	0.00	0.00	$66,573	$0	$0	0.00	0.00
Aug 2016	$7,215	$0	$0	0.00	0.00	$73,788	$0	$0	0.00	0.00
Sep 2016	$19,745	$0	$0	0.00	0.00	$93,532	$0	$0	0.00	0.00
CTD	$603,068	$594,172	$622,538	0.99	0.95					

ACWP = actual cost of work performed.
BCWS = budgeted cost of work scheduled.
BCWP = budgeted cost of work performed.
CPI = cost performance index.
EVMS = earned value management system.
FY = fiscal year.
SPI = schedule performance index.

Retrieve and Close Single-Shell Tanks

The current month unfavorable schedule variance (SV) of ($1,488K) is due to:

- Trailer fabrication and site preparation work for the AX Central Trailer Complex did not start as planned due to Washington River Protection Solutions LLC's (WRPS) decision to defer/re-plan this scope. A baseline change request is currently being developed/implemented.

The current month unfavorable cost variance (CV) of ($2,875K) is due to:

- Retrieval operations has been suspended at Tank 241-C-C111 since early October as a result of a hydraulic leak on the hydraulic pump unit. The project team is required to maintain retrieval crews during non-retrieval operations to monitor the tank and retrieval equipment. Performance is based on retrieval operations (gallons retrieved).
- Additional resources (i.e., direct and subcontractor) were required for field activities related to excavating, back filling and isolating legacy ventilation duct work near AX-101/102, and excavating near AX-104 Riser 9D due to higher than expected soil contamination levels.

Waste Treatment and Immobilization Plant Project

Number	Title	Due Date	Status*
D-00A-06	Complete Methods Validations	12/31/2017	Ongoing
D-00A-17	Hot Start of Waste Treatment Plant	12/31/2019	Ongoing
D-00A-01	Achieve Initial Plant Operations for WTP	12/31/2022	Ongoing

WTP = Waste Treatment and Immobilization Plant.

The Waste Treatment and Immobilization Plant (WTP) Project currently employs approximately 3,006 full-time equivalent contractor (Bechtel National, Inc. [BNI]) and subcontractor personnel. This includes 638 craft, 413 non-manual, and 155 subcontractor full-time equivalent personnel working at the WTP construction site (all facilities).

In October 2012, the percent-complete values for Pretreatment (PT) and High-Level Waste (HLW) facilities were frozen at the September 2012 rate. Construction, procurement, and production engineering activities were placed on hold for the PT Facility and significantly slowed down for the HLW Facility. In August 2014, the U.S. Department of Energy (DOE) approved continuation of production engineering activities for HLW. Subsequently, DOE has approved the fiscal year (FY) 2015 and FY 2016 2-Year Interim Work Plan. In April 2015, a 3-Year Interim Work Plan for the PT Facility was implemented emphasizing prioritization of technical issue resolution activities. The WTP Project is focused on resolving the PT Facility technical issues and finalizing the HLW Facility design.

The WTP Project continues to focus on completion of the Low-Activity Waste (LAW) Facility, Analytical Laboratory (LAB), and Balance of Facilities (BOF) (collectively known as LBL). As of November 2015, LBL facilities were 51 percent complete, design and engineering was 80 percent complete, procurement was 72 percent complete, construction was 80 percent complete, and startup and commissioning was 9 percent complete.

In November 2015, the cumulative to-date WTP Project schedule variance was a negative $23.0 million, and the cumulative to-date WTP Project cost variance was a positive $61.4 million. The cumulative to-date cost and schedule variance is based on the progress of the LBL internal forecast.

The following is the project status through the end of November 2015.

Significant Past Accomplishments:

- Completed bulk excavation of the Effluent Management Facility (EMF) (BOF)
- Submitted Permit Package 23 (LAW)
- Issued mixing requirement revision to ORP, pending final concurrence (PT)
- Completed Synergy report to ORP, pending final concurrence (PT)
- Started full-scale testing of the first high-efficiency particulate air (HEPA) filter design (HLW)

Significant Planned Actions in the Next Six Months:

- Receive the thermal catalytic oxidizer (LAW)
- Place melter lid castable refractor (LAW)
- Complete LAB system walk downs in support of DFLAW modifications (LAB)
- Submit the initial EMF Preliminary Documented Safety Analysis (PDSA) (BOF)
- Complete site energization from permanent power supply (BOF)
- Provide to ORP for review of the Engineering Study – Hydrogen Control and approach in pulse jet mixer's (PJM) mixed vessels (PT)
- Provide to ORP the revised preliminary Criticality Safety Evaluation Report (CSER) for approval (PT)
- DOE approval of the radioactive liquid waste disposal (RLD) safety basis change package (HLW)
- Issue Phase 1 of the HLW melter off-gas treatment process/process vessel vent engineering (HLW)

Issues:

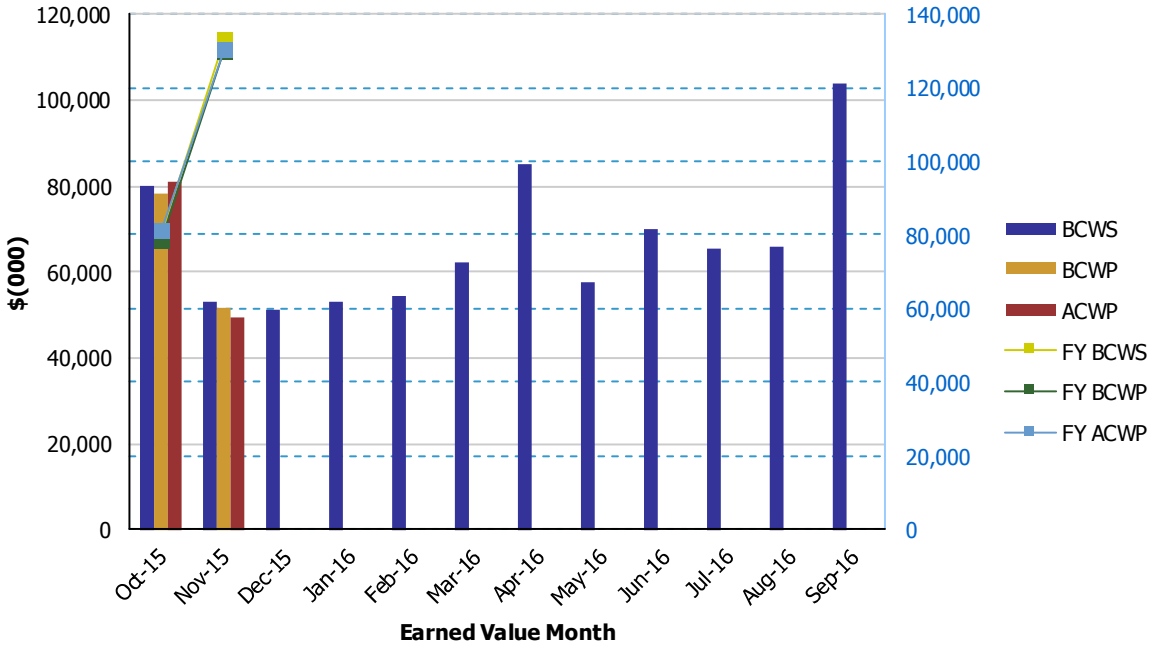
*DOE has notified the State of Washington and State of Oregon that a serious risk has arisen that DOE may be unable to meet this Consent Decree milestone. Technical issues related to WTP include, among others, PJMs, corrosion/erosion in piping and vessels, hydrogen accumulation, criticality, and ventilation.

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2016 Earned Value Data Data as of: November 2015

River Protection Project
Waste Treatment Plant (WTP) Project

EVMS Monthly and Fiscal Year Values



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2015	$79,800	$78,230	$81,000	0.98	0.97	$79,800	$78,230	$81,000	0.98	0.97
Nov 2015	$52,815	$51,614	$49,184	0.98	1.05	$132,615	$129,844	$130,184	0.98	1.00
Dec 2015	$51,320									
Jan 2016	$52,937									
Feb 2016	$54,528									
Mar 2016	$62,236									
Apr 2016	$84,836									
May 2016	$57,722									
Jun 2016	$69,759									
Jul 2016	$65,285									
Aug 2016	$66,012									
Sep 2016	$104,043									

PTD	$9,232,379	$9,209,390	$9,147,986	1.00	1.01

Pretreatment Facility

Number	Title	Due Date	Status*
D-00A-19	Complete Elevation 98' Concrete Floor Slab in PT Facility	12/31/2014	Past Due
D-00A-13	Complete Installation of Pretreatment Feed Separation Vessels	12/31/2015	Past Due
D-00A-14	PT Facility Construction Substantially Complete	12/31/2017	Ongoing
D-00A-15	Start PT Facility Cold Commissioning	12/31/2018	Ongoing
D-00A-16	PT Facility Hot Commissioning Complete	12/31/2019	Ongoing

PT = pretreatment.

The Pretreatment (PT) Facility will separate radioactive tank waste into high-level waste (HLW) and low-activity waste (LAW) fractions, and transfer each waste type to the respective vitrification facility for immobilization. As of September 2012, the PT Facility was 56 percent complete overall, with engineering design 85 percent complete, procurement 56 percent complete, construction 43 percent complete, and startup and commissioning 3 percent complete. Construction, procurement, and production engineering activities remain on hold, resulting in no change to the percent-complete status since September 2012. Bechtel National, Inc. (BNI) and U.S. Department of Energy (DOE) continue to focus on resolving technical issues, performing hazard analyses, and completing safety evaluations for process systems in accordance with the revised PT Facility 3-year Interim Work Plan

BNI has submitted resolution plans for eight technical issues: T1, Hydrogen in Vessels; T2, Criticality; T3, Hydrogen in Piping and Ancillary Vessels (HPAV); T4, Mixing; T5, Erosion Corrosion; T6, PT Facility Optimization; T7, Vessel Analysis; and T8, Ventilation. Phase 1 of the Full-Scale Vessel Testing is continuing for the PJM controls utilizing the RLD-8T vessel. Technical review teams continue to evaluate open PT Facility technical issues. An evaluation is ongoing relative to a standardized design for high-solids vessels within the PT Facility. With primary emphasis on design and fabrication of hold point releases supporting procurement, fabrication, and delivery of the standardized high solids vessel design (SHSVD)-T16ft vessel.

Significant Past Accomplishments:

- Issued T2 Criticality Final Report
- Issued T3 HPAV work plan to ORP, pending final concurrence
- Started PJM controls Phase 3 test planning
- Issued mixing requirement revision to ORP, pending final concurrence
- Started PJM fabrication
- Completed Synergy report to ORP, pending final concurrence

Significant Planned Actions in the Next Six Months:

- Complete criticality safety evaluation engineering study for ultrafiltration process system (UFP)/HLW lag storage and feed blending process (HLP)/Plant Wash and Disposal System (PWD) with controls
- Complete hydrogen control strategy gap analysis (engineering study includes gap analysis and post design basis event [DBE] ventilation and air requirements)
- Receive technical issue closure work packages T1 and T3
- Issue Phase 2 PJM controls study
- Complete sliding bed evaluation report and brief ORP
- Issue SHSVD Design Verification Guide
- Issue updated erosion/corrosion risk assessment.

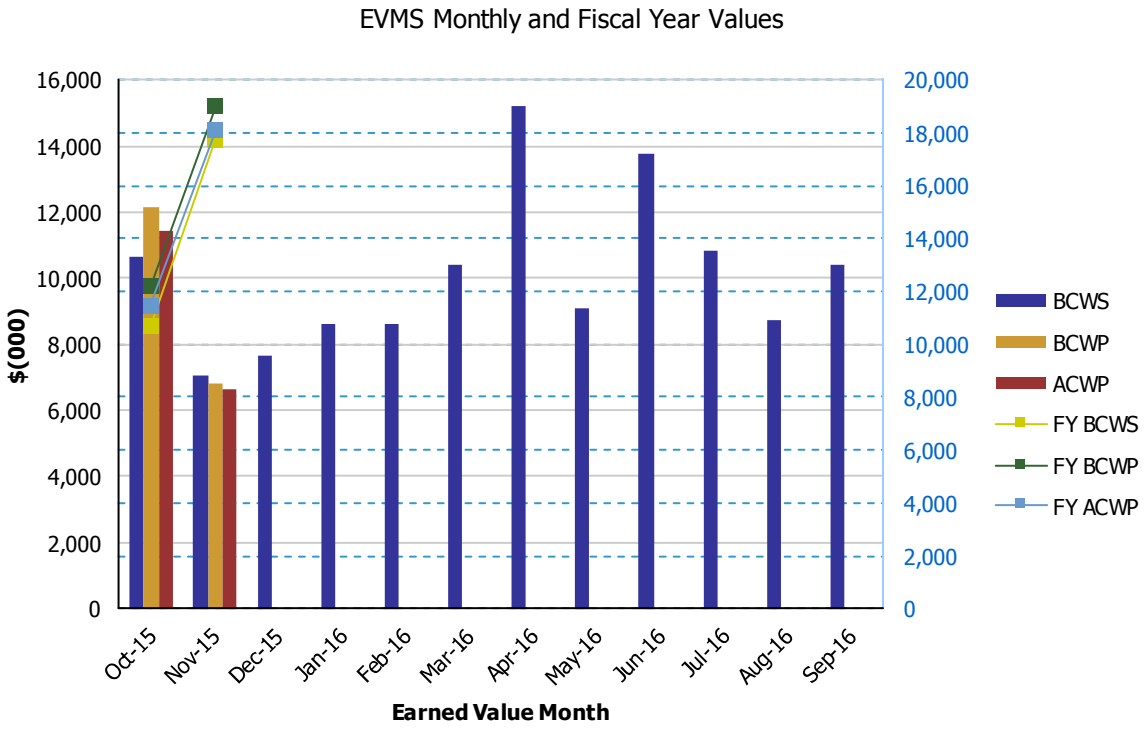
Issues:

*DOE has notified the State of Washington and State of Oregon that a serious risk has arisen that DOE may be unable to meet this Consent Decree milestone. Technical issues related to WTP include, among others, PJMs, corrosion/erosion in piping and vessels, hydrogen accumulation, criticality, and ventilation.

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2016 Earned Value Data Data as of: November 2015

River Protection Project
Pretreatment Facility (WBS 1.01)



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2015	$10,667	$12,155	$11,441	1.14	1.06	$10,667	$12,155	$11,441	1.14	1.06
Nov 2015	$7,074	$6,836	$6,648	0.97	1.03	$17,741	$18,991	$18,089	1.07	1.05
Dec 2015	$7,678									
Jan 2016	$8,595									
Feb 2016	$8,625									
Mar 2016	$10,398									
Apr 2016	$15,196									
May 2016	$9,087									
Jun 2016	$13,766									
Jul 2016	$10,826									
Aug 2016	$8,731									
Sep 2016	$10,437									

PTD	$1,750,141	$1,750,823	$1,730,649	1.00	1.01

High-Level Waste Facility

Number	Title	Due Date	Status
D-00A-21	Complete Construction of Structural Steel to 37' in HLW Facility	12/31/2012	Complete
D-00A-02	HLW Facility Construction Substantially Complete	12/31/2016	Ongoing*
D-00A-03	Start HLW Facility Cold Commissioning	6/30/2018	Ongoing*
D-00A-04	HLW Facility Hot Commissioning Complete	12/31/2019	Ongoing*

HLW = high-level waste.

The High-Level Waste (HLW) Facility will receive the separated HLW concentrate from the Pretreatment (PT) Facility. This concentrate will be blended with glass formers, converted into molten glass in one of the two HLW melters, and then poured into cylindrical stainless steel canisters. After cooling, the canisters will be sealed and decontaminated before shipping to interim storage.

As of September 2012, the HLW Facility was 62 percent complete overall, with engineering design 89 percent complete, procurement 81 percent complete, construction 43 percent complete, and startup and commissioning 4 percent complete. Construction, procurement, and production engineering activities have been significantly slowed down, resulting in minimal change to the percent completion status since September 2012.

Currently, all activities are being performed in accordance with the FY 2015/FY 2016 2-Year Work Plan. Efforts are focused on completing activities required to obtain full production authorization by the U.S. Department of Energy (DOE). Limited construction is continuing with the concrete placements, installation of support steel, and crane rails in the canister decontamination cave and melter caves.

To support construction, engineering continues to execute detailed evaluations of structural supports for future installation of piping, duct, and cable trays. Design activities are focused to support implementation of technical core team recommendations, performance of engineering study and analysis to disposition design, and operability review comments. Hazard and accident analyses are ongoing to support the Preliminary Documented Safety Analysis (PDSA) update to align design and the safety basis.

Systems engineering continues to develop system design descriptions (SDD), and incorporate SDD requirements into a requirements management system to ensure that all requirements are verified at the completion of design.

Multiple high-efficiency particulate air (HEPA) filter media designs are planned to be tested to ensure the qualified filters support the needs for HLW, along with the Low-Activity Waste (LAW) Facility, Analytical Laboratory (LAB), and the Balance of Facilities (BOF) (collectively known as LBL). Testing of the first full-scale filter design at Mississippi State University is ongoing. Fabrication of the remaining filters for testing continues.

PDSA change package for the radioactive liquid waste disposal (RLD) vessels 7 and 8 is undergoing DOE review with approval expected in January 2016.

Significant Past Accomplishments:

- Started full-scale testing of the first HEPA filter design
- Completed one concrete placement (wall 4110)
- Installed 7 tons of structural steel

Significant Planned Actions in the Next Six Months:

- DOE approval of the RLD safety basis change package
- Complete installation of crane rails and supports in the canister decontamination cave
- Issue emergency turbine generator (ETX) system design description
- Issue Phase 1 of the high-level waste melter off-gas treatment process/process vessel vent engineering
- Issue the radioactive waste handling system engineering study
- Complete facility hazards analysis to support PDSA update

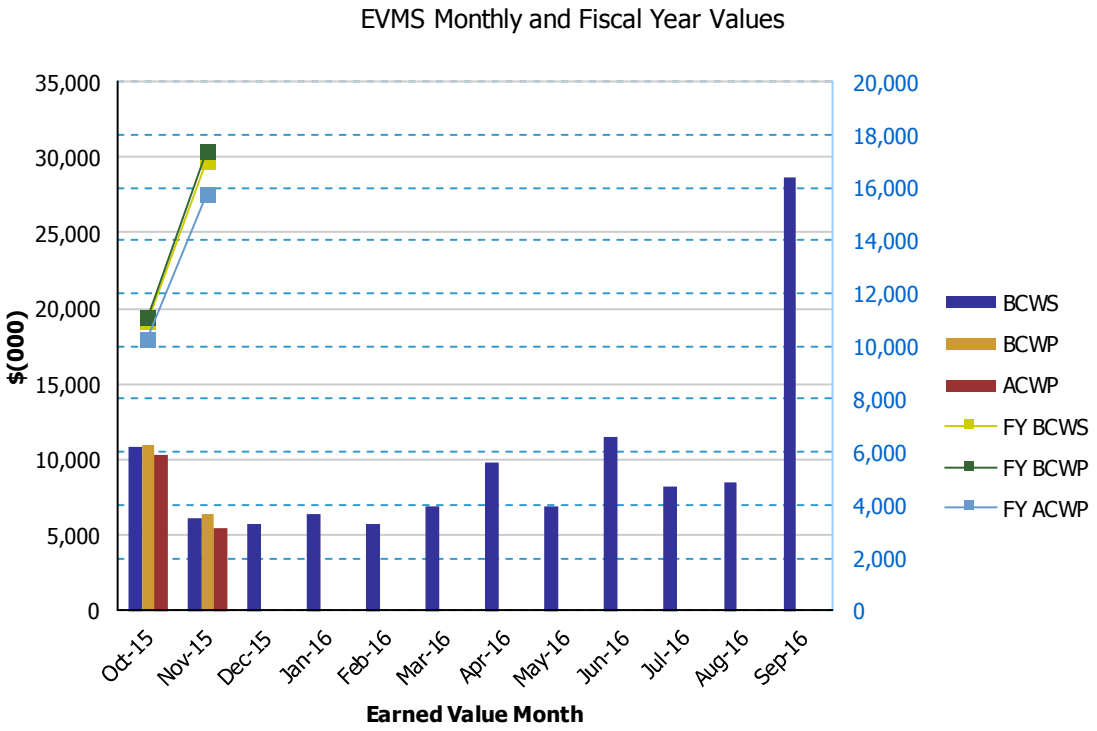
Issues:

*DOE has notified the State of Washington and State of Oregon that a serious risk has arisen that DOE may be unable to meet this Consent Decree milestone. Technical issues related to the WTP include, among others, PJMs, corrosion/erosion in piping and vessels, hydrogen accumulation, criticality, and ventilation.

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2016 Earned Value Data Data as of: November 2015

River Protection Project
High-Level Waste Facility (WBS 1.03)



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2015	$10,905	$11,028	$10,257	1.01	1.08	$10,905	$11,028	$10,257	1.01	1.08
Nov 2015	$6,103	$6,326	$5,452	1.04	1.16	$17,008	$17,355	$15,708	1.02	1.10
Dec 2015	$5,737									
Jan 2016	$6,375									
Feb 2016	$5,725									
Mar 2016	$6,884									
Apr 2016	$9,761									
May 2016	$6,941									
Jun 2016	$11,434									
Jul 2016	$8,172									
Aug 2016	$8,461									
Sep 2016	$28,693									

PTD	$1,218,296	$1,217,620	$1,201,838	1.00	1.01

Low-Activity Waste Facility

Number	Title	Due Date	Status*
D-00A-07	LAW Facility Construction Substantially Complete	12/31/2014	Past Due
D-00A-08	Start LAW Facility Cold Commissioning	12/31/2018	Ongoing
D-00A-09	LAW Facility Hot Commissioning Complete	12/31/2019	Ongoing

LAW = low-activity waste.

The Low-Activity Waste (LAW) Facility will process concentrated low-activity waste which will be mixed with silica and other glass-forming materials. The mixture will be fed into the LAW's two melters, at a design capacity of 30 metric tons per day, and heated to 2,100 degrees Fahrenheit and vitrified into glass. The 300-ton melters are approximately 20 feet by 30 feet and 16 feet high. The glass mixture will then be poured in to stainless steel containers, which are 4 feet in diameter, 7 feet tall and weigh more than 7 tons. These containers are anticipated to be disposed of on the Hanford Site in the Integrated Disposal Facility. As of November 2015, the LAW Facility was 55 percent complete overall, with engineering design 78 percent complete, procurement 75 percent complete, construction 79 percent complete, and startup and commissioning 5 percent complete.

Significant Past Accomplishments:

- Installed 100 linear feet of process piping and hydro-tested 40 linear feet of piping
- Installed 1,740 linear feet of conduit and pulled 23,400 linear feet of cable
- Installed 257 process area penetration seals
- Completed installation of scheduled conduit elevation +28
- Completed installation of fire protection elevation -21
- Submitted Permit Package 23 (thermal catalytic oxidizer, caustic scrubber, melters)

Significant Planned Actions in the Next Six Months:

- Complete subcontractor work scope in the annex
- Receive caustic scrubber
- Assemble and install wet electrostatic precipitator internals
- Receive the thermal catalytic oxidizer (TCO) and ammonia skid
- Documented Safety Analysis (DSA) Chapter 3.3 "Hazards Analysis" complete
- Place melter lid castable refractor

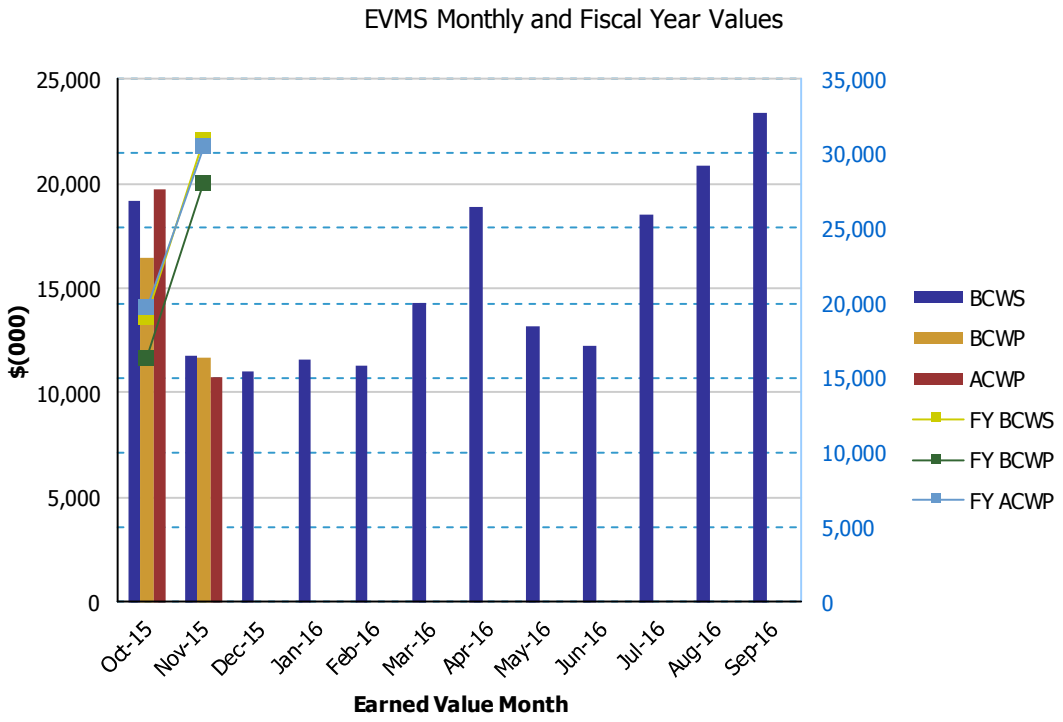
Issues:

*DOE has notified the State of Washington and State of Oregon that a serious risk has arisen that DOE may be unable to meet this Consent Decree milestone.

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2016 Earned Value Data Data as of: November 2015

River Protection Project
Low-Activity Waste Facility (WBS 1.02)



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2015	$19,131	$16,406	$19,702	0.86	0.83	$19,131	$16,406	$19,702	0.86	0.83
Nov 2015	$11,764	$11,637	$10,735	0.99	1.08	$30,896	$28,043	$30,436	0.91	0.92
Dec 2015	$11,009									
Jan 2016	$11,611									
Feb 2016	$11,348									
Mar 2016	$14,280									
Apr 2016	$18,855									
May 2016	$13,170									
Jun 2016	$12,224									
Jul 2016	$18,532									
Aug 2016	$20,849									
Sep 2016	$23,365									

PTD	$1,249,095	$1,236,298	$1,231,926	0.99	1.00

Balance of Facilities

Number	Title	Due Date	Status
D-00A-12	Steam Plant Construction Complete	12/31/2012	Complete

The Balance of Facilities (BOF) will provide services and utilities to support operation of the main production facilities: Pretreatment (PT), High-Level Waste (HLW), Low-Activity Waste (LAW), and Analytical Laboratory (LAB). As of November 2015, BOF was 57 percent complete overall, with engineering design 82 percent complete, procurement 71 percent complete, construction 82 percent complete, and startup and commissioning 15 percent complete.

Engineering activities are in progress to develop the design for BOF systems in support of direct feed, low-activity-waste (DFLAW). Current efforts are focused on progressing the design of the Effluent Management Facility (EMF), identifying and supporting BOF system isolations, supporting procurement activities, and finalizing the initial Preliminary Design Safety Analysis (PDSA) for the EMF. Construction efforts are focused on initial excavation of the EMF, installation of BOF system isolations, and completion of the remaining items required for energization of the Waste Treatment and Immobilization Plant (WTP) switchgear building from the permanent power supply.

Significant Past Accomplishments:

- Completed bulk excavation of the EMF
- Continued excavation and drilling activities to install cathodic protection system upgrades
- Continued switchgear testing in support of site energization

Significant Planned Actions in the Next Six Months:

- Submit the initial EMF PDSA
- Begin excavation of the EMF drain pit
- Complete site energization from permanent power supply

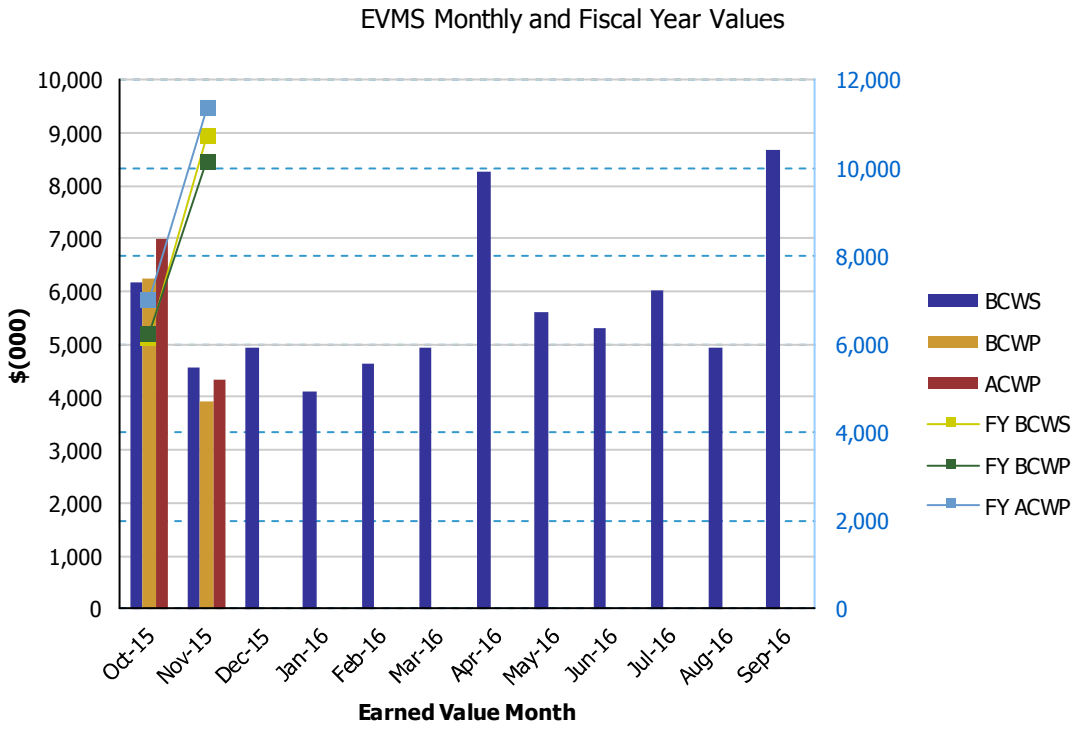
Issues:

No major issues at this time.

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2016 Earned Value Data Data as of: November 2015

River Protection Project
Balance of Facilities (WBS 1.05)



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2015	$6,160	$6,249	$7,006	1.01	0.89	$6,160	$6,249	$7,006	1.01	0.89
Nov 2015	$4,555	$3,913	$4,344	0.86	0.90	$10,715	$10,162	$11,350	0.95	0.90
Dec 2015	$4,920									
Jan 2016	$4,110									
Feb 2016	$4,630									
Mar 2016	$4,920									
Apr 2016	$8,266									
May 2016	$5,599									
Jun 2016	$5,296									
Jul 2016	$6,007									
Aug 2016	$4,921									
Sep 2016	$8,687									
PTD	$440,210	$435,363	$434,973	0.99	1.00					

Analytical Laboratory

Number	Title	Due Date	Status
D-00A-05	LAB Construction Substantially Complete	12/31/2012	Complete

LAB = Analytical Laboratory.

The Analytical Laboratory (LAB) will support Waste Treatment and Immobilization Plant (WTP) operations by analyzing feed, vitrified waste, and effluent streams. As of November 2015, the LAB was 61 percent complete overall, with engineering design 85 percent complete, procurement 87 percent complete, construction 96 percent complete, and startup and commissioning 11 percent complete.

During this reporting period engineering efforts were focused on LAB system reviews to evaluate potential modifications or isolations in support of the direct feed of low-activity waste (DFLAW). Closure of nonconformance reports and construction deficiency reports continued. Construction efforts within the LAB are minimal. The remaining construction work scope will be completed in parallel with system modifications and construction activities required to support the direct feed of LAW.

Significant Past Accomplishments:

- Continued development of the test engineers workstation
- Continued development of procedures for the WTP analytical methods development process
- Continued final preparations for submitting remaining HVAC quality verification report packages (QVRPs)

Significant Planned Actions in the Next Six Months:

- Initiate component level testing of select LAB systems
- Complete LAB system walk downs in support of DFLAW modifications

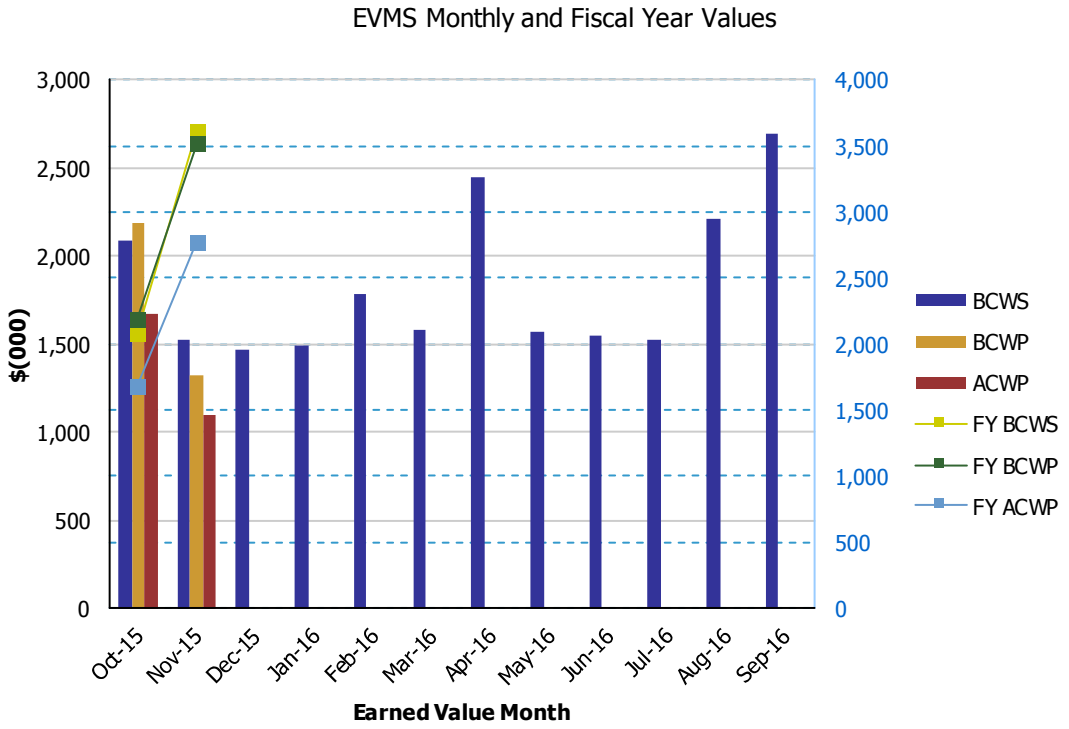
Issues:

No major issues at this time.

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2016 Earned Value Data Data as of: November 2015

River Protection Project
Analytical Laboratory (WBS 1.06)



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2015	$2,083	$2,188	$1,674	1.05	1.31	$2,083	$2,188	$1,674	1.05	1.31
Nov 2015	$1,528	$1,324	$1,093	0.87	1.21	$3,611	$3,513	$2,768	0.97	1.27
Dec 2015	$1,463									
Jan 2016	$1,489									
Feb 2016	$1,779									
Mar 2016	$1,578									
Apr 2016	$2,449									
May 2016	$1,573									
Jun 2016	$1,543									
Jul 2016	$1,520									
Aug 2016	$2,208									
Sep 2016	$2,697									

PTD	$316,176	$314,431	$311,116	0.99	1.01

Waste Treatment Plant Project - (LBL/Project Services) Percent Complete Status

Through November 2015

(Dollars - Millions)	Overall Facility Percent Complete Unallocated Dollars			Design/Engineering Unallocated Dollars			Procurement Unallocated Dollars			Construction Unallocated Dollars			Startup & Plant Operations Unallocated Dollars			Project Management & Shared Services Unallocated Dollars		
Facilities	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	% Complete	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	% Complete	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	% Complete	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	% Complete	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	% Complete	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	% Complete
Low-Activity Waste	2,129.8	1,161.3	55%	478.2	374.6	78%	341.4	255.8	75%	628.6	494.7	79%	677.6	32.1	5%	4.0	4.0	100%
Balance of Facilities	721.4	407.6	57%	133.4	109.7	82%	75.8	54.2	71%	249.0	203.1	82%	262.7	40.2	15%	0.5	0.5	100%
Analytical Lab	506.2	306.5	61%	93.5	79.4	85%	65.6	56.8	87%	156.0	149.7	96%	190.7	20.2	11%	0.5	0.5	100%
LBL Facility Services	438.7	73.0	17%	0.0	0.0	0%	42.6	12.1	28%	31.8	9.9	31%	241.7	24.7	10%	122.6	26.31	21%
Total LBL	**3,796.1**	**1,948.4**	**51%**	**705.0**	**563.7**	**80%**	**525.4**	**378.8**	**72%**	**1,065.5**	**857.3**	**80%**	**1,372.7**	**117.2**	**9%**	**127.6**	**31.3**	**25%**
Direct Feed LAW	89.3	25.2	28%	61.6	20.7	34%	7.48	0.21	3%	15.6	3.0	19%	0.0	0.0	0%	4.6	1.31	28%
Project Services	369.2	236.0	64%	53.3	31.8	60%	34.9	21.4	61%	71.4	57.0	80%	1.7	1.7	100%	207.9	124.2	60%
Total DFLAW & PS	**458.5**	**261.2**	**57%**	**114.9**	**52.5**	**46%**	**42.4**	**21.6**	**51%**	**87.0**	**60.0**	**69%**	**1.7**	**1.7**	**100%**	**212.5**	**125.5**	**59%**
Total LBL, DFLAW & Project Services	**4,254.6**	**2,209.6**	**52%**	**819.9**	**616.2**	**75%**	**567.8**	**400.4**	**71%**	**1,152.4**	**917.2**	**80%**	**1,374.4**	**119.0**	**9%**	**340.1**	**156.8**	**46%**
PT/HLW/SS Percent Complete Status Frozen as of September 2012 (due to project rebaselining efforts)																		
High-Level Waste	1,478.6	922.1	62%	364.4	325.2	89%	433.9	349.4	81%	561.1	243.2	43%	119.2	4.4	4%	n/a	n/a	n/a
Pretreatment	2,517.3	1,410.5	56%	761.7	645.8	85%	679.9	380.4	56%	890.0	378.6	43%	185.8	5.6	3%	n/a	n/a	n/a
Shared Services	4,726.9	3,632.6	77%	1,047.0	977.9	93%	451.7	395.0	87%	1,436.5	1,143.0	80%	453.5	133.2	29%	1,338.1	983.5	73%
Total HLW/PT/SS	**8,722.8**	**5,965.2**	**68%**	**2,173.1**	**1,948.9**	**90%**	**1,565.5**	**1,124.8**	**72%**	**2,887.6**	**1,764.8**	**61%**	**758.5**	**143.2**	**19%**	**1,338.1**	**983.5**	**73%**
Undistributed Budget	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total WTP	**12,977.4**	**8,174.8**	**63%**	**2,993.0**	**2,565.1**	**86%**	**2,133.3**	**1,525.2**	**71%**	**4,040.0**	**2,682.0**	**66%**	**2,132.9**	**262.2**	**12%**	**1,678.2**	**1,140.3**	**68%**

Source: Preliminary WTP Contract Performance Report - Format 1, Data for November 2015

Note: In September 2012, the LBL Replan was incorporated into the project OTB baseline resulting in increases/decreases to the LBL facility budgets, which correspondingly increased/decreased the facility/function to-date percent complete values. In October 2012, the PT/HLW/SS Interim Work Plan was incorporated into the project OTB baseline resulting in decreases to the PT/HLW/SS facility budgets, this was due to a work scope shift from the Distributed budget to UB. Percent Complete Values shown for PT, HLW and SS have been frozen with the September 2012 values due to the Interim Work Plan and budgets being moved into UB. UB value for the project for PT/HLW/SS is $2,014M. The percent complete values for the Total WTP are the current total LBL BCWP added to the frozen HLW/PT/SS BCWP values. In March 2014, Project Controls and Project Management work scope was moved out of Shared Services control accounts into the facilities with new control accounts being set up in the facilities. These will now be seen under Project Management/Shared Services by facility. The Shared Services PMB value has not been changed to reflect this change due to the freeze on HLW/PT and SS and the budgets remaining in UB. October 2014 data reflects the incorporation of Direct Feed LAW and the split of Shared Services into LBL Facility Services and Project Services. July 2015 LBL percent complete data is a total of LAW-BOF-LAB and LBL Facility Services. The Project Services Allocation account (zPSA), as shown on the CPR Format 1, is not added to LBL for percent complete purposes.